

**Notice of Allowability**

Application No.

10/082,576

Examiner

Shouxiang Hu

Applicant(s)

AOYAMA, JUNICHI

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

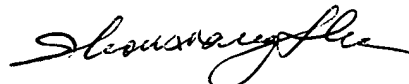
1. ☒ This communication is responsive to 08-27-04 amendment.
2. ☒ The allowed claim(s) is/are 1-6, 8-15 and 17-19.
3. ☒ The drawings filed on 25 February 2002 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20041110.
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_



**SHOUXIANG HU**  
**PRIMARY EXAMINER**

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Christopher P. Rauch (RN: 45,034) on November 04, 2004.

The application has been amended as follows:

#### IN THE CLAIMS

1. Claims 7, 16 and 20-40 are canceled.
2. Claims 1 and 10 are amended as following:

Claim 1. (currently amended) A semiconductor device in which a second conductive layer is connected through a connection pillar to a first conductive layer embedded in a groove formed in an insulation film, wherein:

said connection pillar is formed directly on a surface of said first conductive layer and exhibits a crystallographical alignment to the first conductive layer and a mechanical strength effected by being grown from the surface of the first conductive layer without use of a any growth guide at a direction of a width of the first conductive layer such that the connection pillar has a width that is self-aligned to the width of the first conductive layer without use of the any growth guide, and

Art Unit: 2811

said second conductive layer is formed on a surface of the connection pillar opposite the first conductive layer.

Claim 10. (currently amended) A semiconductor device in which a second conductive layer is connected through a connection pillar to a first conductive layer embedded in a groove formed in an insulation film, wherein:

a growth suppression film formed on said insulation film and said first conductive layer, the growth suppression film having an opening formed through an entire thickness thereof, the opening positioned across a width of the first conductive layer and having a width that is wider than the width of the first conductive layer, and

said connection pillar is formed directly on a surface of said first conductive layer within said opening of said growth suppression film and exhibits a crystallographical alignment to the first conductive layer and a mechanical strength effected by being grown from the surface of the first conductive layer without use of a any growth guide at a direction of the width of the first conductive layer such that the connection pillar has a width that is self-aligned to the width of the first conductive layer without use of the any growth guide, and

said second conductive layer is formed on a surface of the connection pillar opposite the first conductive layer.

***Allowable Subject Matter***

Claims 1-6, 8-15 and 17-19 are allowed.

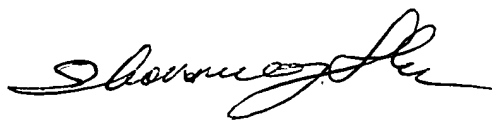
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH  
November 11, 2004



**SHOUXIANG HU  
PRIMARY EXAMINER**